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Private Equity and Buyouts: A Study of Value Creation in Portfolio Companies

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Abstract

Buyouts became a hot topic in the financial academia after billions of euros have been invested by the private equity industry over the past decade. Are these deals economically desirable? Acknowledging the need to adjust operating returns by the new risk profile of target firms after the buyout (i.e. the new cost of capital), this study provides new empirical evidence on whether and how buyouts create value in portfolio companies. Using a sample of 159 pan-European deals, we found no evidence of higher value creation in buyouts after adjusting for industry effects. Furthermore, we applied a multivariate analysis to study the determinants of value creation and found that, apart from sales growth and the outsourcing of intermediate goods and services, the majority of theoretical drivers have weak explanatory power or actually fail to explain the behaviour of risk adjust returns. Overall, our findings support the theory that private equity investments introduce an entrepreneurial and growth mid-set, reflected in higher pace of growth and capex levels, while value may be created by reducing labour intensity through higher outsourcing. In the end, our results highlighted the need for further investigation of the value creation process in the more recent waves of deals.

Key-words: Buyouts, Private Equity, Value Creation, Operating Performance

JEL-Codes: G24, G32, G34

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ECONOMICS AND MANAGEMENT

1. Introduction

1.1 Private Equity Investment: why does it matter?

Buyouts may exert a significant impact in the whole economy. Whenever a firm goes private in a buyout it sparks inevitable impacts (positive or negative) on the wealth of the pre and post-buyout shareholders, creditors, top executives, employees and governments. Moreover, behind the overall private equity (“PE”) market are institutional investors (pension funds, endowments, funds of funds or insurance companies) supplying the capital invested in portfolio companies, collecting thereafter the returns that will fund their long-term liabilities such as insurance claims or employees’ pensions.

The increasing role of the PE market in the economy has caught the attention of regulators, media and trade unions. Among others, PE firms have been criticized for asset stripping and asset flipping (e.g., Wright et al., 2009, Guo et al., 2011); negative restructuring effects on employment and employees’ remuneration (e.g., Wright et al., 2012); the use of excessive leverage and potential contribution for systemic risk, especially after the 2007-08 financial crisis (e.g., Wilson et al., 2012); short-term performance horizon (e.g., Wilson et al., 2012) or offshore holding companies that reduce significantly tax bills (e.g., Wright et al., 2009).

Furthermore, the debate has been also extended to the value creation *vs.* value redistribution hypotheses. In fact, many authors argue that PE investments are just a mechanism of value expropriation rather than value creation.

First, some authors argue that the high leverage usually associated to PE deals provides significant tax shields, meaning a value transfer from taxpayers (Guo et al., 2011). In some cases, the tax savings implied by the incremental interest deductions can more than account for the total stockholder premium paid in the buyout (Smith, 1990). Still, even if the corporate tax deductions are substantial, the net effect of leveraged buyouts on the revenues of the Public Treasury remains unclear (Smith, 1990). According to this author, the premium paid to stockholders and the interest paid to debt holders may generate tax revenues from capital gains and interest income, respectively. Also, the sale of assets with a higher value elsewhere (divestments of peripheral units are typical restructuring measures in PE buyouts) may lead to capital gains taxes at the corporate level as well.

Furthermore, the increase in management efficiency resulting from the new corporate ownership structure may lead to higher taxable corporate income.

Second, other studies suggest that private equity investors may use debt to pay special dividends for themselves which constitutes an effective expropriation from other shareholders (e.g. Tykvová, T. and Borell, M., 2012).

Third, PE investors may destroy the firm's implicit contracts with its employees (layoffs, salary cuts, etc.) which might be seen as value expropriation as well. Phan and Hill (1995) argue that employees are negatively impacted by the increasing leverage on the acquiring company if, for instance, it reduces the likelihood to fund their pension plans. More important, the downsizings usually associated to these deals bring employee layoffs while efficiency programmes may imply wage reductions. The authors go even further to claim that leveraged buyouts might be a mechanism of enriching senior managers (with substantially higher equity positions) at the expense of other employees. Overall, the empirical evidence on this matter is mixed and is reviewed later in this study.

Lastly, a substantial part of the PE investors' gains may be simply wealth transfers from bondholders and other creditors when their bonds/loans are left outstanding in the new company with a riskier profile (Jensen, M., 1989). However, the author recalls that convertible bonds and preferred stockholders usually gain a significant amount in such transactions while there is no clear evidence that bondholders lose on average. On this matter, we highlight the empirical work of Cook et al. (1992) which studied the impact of 29 MBOs announced in the US during 1981-1989 on the value of the firms' outstanding non-convertible bonds and found bondholder wealth losses of about 3% associated with the announcement of the buyout, consistent with previous studies of Asquith and Wizman (1990) and Warga and Welch (1991) but in conflict with the findings provided by Marais et al. (1989). On the other hand, Lehn and Poulsen (1989) argue that even if bond prices might decrease with the higher financial risk, stockholder gains in going private transactions greatly exceed potential losses suffered by bondholders. In the end, we tend to agree with the argument that any expropriation of this kind should be relativized given the wide assortment of mechanisms to protect debt holders (e.g. poison puts and other covenants) in the event of substantial restructuring of portfolio companies (Jensen, M., 1989).

In short, a renewed emphasis has been placed on the value creation process of PE deals, calling for further empirical work on this topic.

1.2 Our Contribution

This study sheds new lights on the value created for the claimholders in portfolio companies (both equity holders and debt holders) and follows the same spirit of Bergström et al. (2007) in the sense that, from an aggregated societal perspective, value creation is mainly achieved through operating improvements in portfolio companies. In this regard, we recall that empirical evidence from 206 buyouts in Europe during 1999-2005 suggests that roughly two thirds of the value captured by PE investors comes from operating improvements at portfolio companies, being much more important than financial engineering (Achleitner et al., 2010), consistent Heel and Kehoe (2005).

Using recent statistical data from pan-European deals (buyouts concluded from 2006 to 2011), our study examines the following research questions: (1) *Does the private equity investment creates value in the acquired companies?* and (2) *What are the main determinants and their impact on the buyouts value creation process?*

Therefore, this study brings three important contributions.

First, we fill in the actual research gap on buyouts value creation. Indeed, to the best of our knowledge, there is no “true study of value creation” in portfolio companies. While there is vast empirical evidence on post-buyout operating performance (check literature review in section 2) these studies have not taken into account the potential change in the capital structure of portfolio companies. In our view, this is of utmost importance when the end result of a buyout might be a dramatic change in their risk profile (e.g., Cook et al. 1992). As such, whether portfolio companies outperform or underperform a given benchmark is not sufficient to conclude on the value creation of these deals if their operating returns are not properly adjusted by the cost of capital. Hence, our findings derive from risk adjusted returns.

Second, we bring a fresh update on the new wave of private equity deals in Europe. We found that the academic discussion of portfolio companies' performance is still far away from a conclusive stance with mixed results depending on the different waves of deals and with the studies essentially focused in the US and UK markets. As such, it is timely to provide systematic evidence on the most recent wave of deals in Continental Europe and to take into account a different macro and microeconomic context. As Berg and Gottschalg (2005) pointed out "*these (recent deals) may differ substantially from early transactions in their strategic logic and value generation mechanisms, so that earlier studies may be less suitable to explain them*".

Third, no conclusive research has been done on the variables explaining the relative performance of buyouts. Moreover, given the complex process through which different drivers interact with each other, we believe it is paramount to expand the scope of early studies to models that consider a multivariate analysis.

The remainder of the report is structured as follows. Section 2 discusses the theoretical background in light of the existing literature along with the research hypotheses. Chapter 3 describes the methodological strategy, chapter 4 presents the sample, chapter 5 presents the results and chapter 6 concludes.

2. Theory and Hypotheses

2.1 Private Equity and Buyouts

Private Equity Buyouts are a common form of corporate restructuring and occur whenever a specialized investment vehicle (the *private equity fund* or *limited partnership*) acquires a controlling stake in a company or division for a given period of time. PE funds are run by highly skilled professionals (the *general partners*) who raise the capital from institutional investors (the *limited partners*).

These PE buyouts typically leave a significant equity ownership in the hands of the management teams (many studies report over 20% stakes; e.g., Holthausen and Larcker (1996)) and are often financed with a significant amount of debt using the assets / cash flows of the target firm as collateral (the *leveraged buyouts*).

The main rationale of PE investors is to profit by exploring opportunities for both cost efficiencies and growth in portfolio companies thanks to their broad network of contacts, strong management expertise and monitoring skills of general partners. They assume an active role in monitoring the business of portfolio companies which usually includes a seat on the board of directors and the specification of several restrictions on the management behaviour. Likewise, debt providers in leveraged buyouts will closely watch the performance and financial health of portfolio companies, designing and monitoring several debt covenants (Wright et al., 2009).

According to Wright et al. (1994) there are three key features that characterize a buyout:

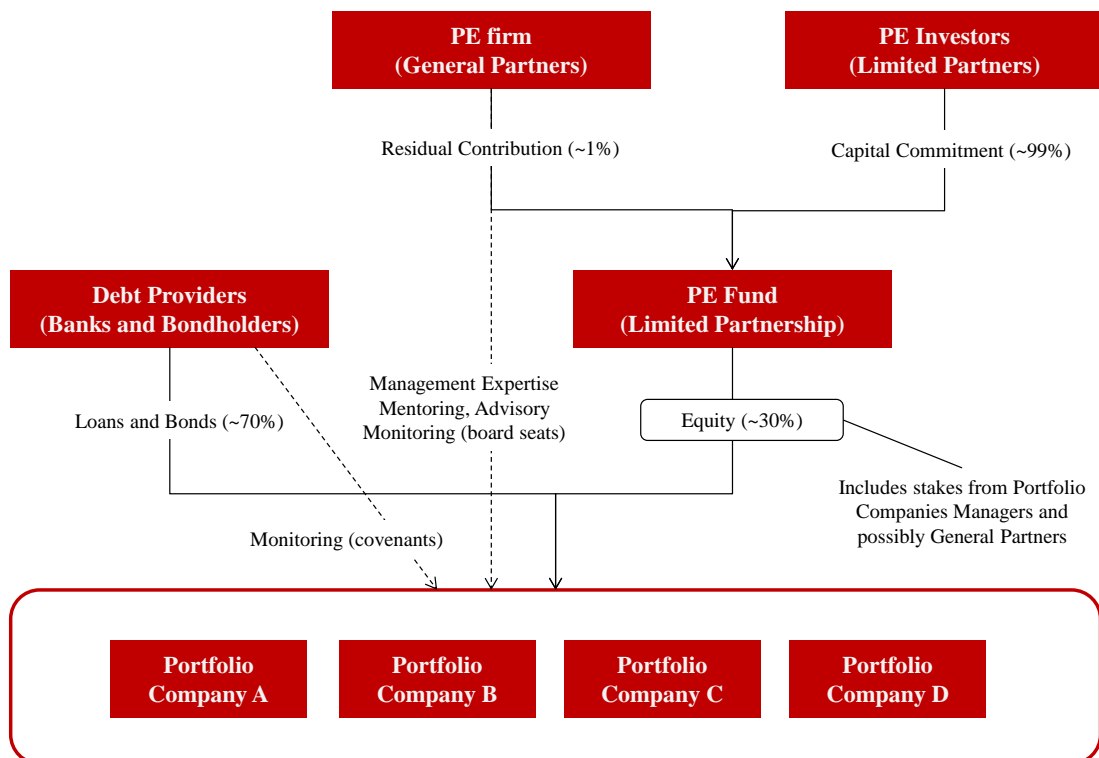
“First, the full or partial transfer of a firm’s assets, embodied in operational business units, to a new company established for the purpose of running them; second, comparatively high reliance on debt - of one form or another - in the financial structure of the new company; allowing thirdly, the relative concentration of equity ownership, with managers and some participating institutions typically holding substantial voting blocks.” Wright et al. (1994).

Lastly, it is worth noting that, contrarily to the more generic form of takeovers, buyouts are not motivated by synergies. Indeed, PE firms manage their portfolio companies independently from one another, with the ultimate goal of increasing the value of the

target company as a stand-alone entity significantly above the acquiring price (Berg and Gottschalg, 2005). In this sense, in the rest of this chapter we introduce and explore the issue of value creation, discussing the mechanisms through which PE firms are expected to increase the value of their target companies.

Figure 1 summarizes this introductory discussion illustrating the typical structure of a leveraged buyout.

Figure 1 – The typical Structure of a Leveraged Buyout



2.2 A Theoretical Framework to Study the Buyouts Value Creation

Prior research has relied mostly on the agency theory as the major theoretical lever of value creation in buyouts. Indeed, following Jensen (1989) seminal contribution, PE-backed buyouts have been commonly seen as a superior governance mechanism (the “Jensen’s hypothesis”) providing the necessary changes in governance and incentive structures either through (1) a substantial management ownership¹, (2) the close

¹ For instance, DeAngelo and DeAgelo (1987), Kaplan (1989), Easterwood et al. (1989), Holthausen and Larcker (1996)).

monitoring of management behaviour² or (3) the use of high financial leverage³ as a discipline device to avoid the waste of corporate resources in projects with negative net present value.

Under this perspective, the very nature of buyouts impose a governance model that results in superior performance of target firms (e.g., Scellato and Ughetto, 2013) with the most common candidates being established firms with a resilient revenue stream (more likely to support the high debt service under economic downturns), high free cash flow available and visible management entrenchment with strong potential to remove inefficiencies caused by the separation of ownership and management control (e.g., Anders 1992).

In another perspective, PE backed buyouts have been recently associated to entrepreneurial opportunities whereby the PE investment is the ultimate catalyst to boost top line growth, promote organizational changes and bring strategic innovations (Berg and Gottschalg, 2005). On this topic, Kester and Luehrman (1995) argue that the figure of the general partner is key to promote strategic changes and support better management decisions thanks to their financial and strategic expertise (commonly known as “the parenting advantage”).

The alleged superior economic performance resulting either from the agency theory or the parenting advantage has been empirically tested in terms of higher operating profitability and/or productivity, based on different accounting measures (e.g., Kaplan (1989), Muscarella and Vetsuypens (1990), Lichtenberg and Siegel (1990), Guo et al. (2011)).

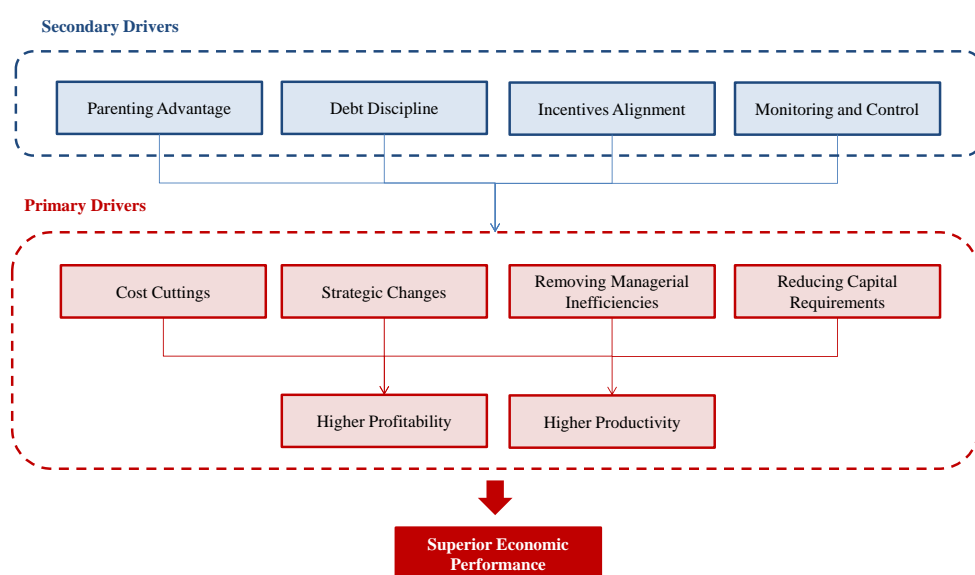
In addition, significant empirical research has been done on the possible drivers of superior performance, such as cost cuttings (employment, wages, overheads, etc.), the strict control of capital requirements (Capex, R&D, inventories, etc.), the removal of managerial inefficiencies (e.g. replacement of the CEO, less bureaucratic structures) and strategic changes (e.g., disposal of non-core divisions, new product developments, etc.)

² For instance, DeAngelo and DeAngelo (1987), Jensen (1989), Baker and Wruck (1989), Anders (1992), Kester and Luehrman, (1995).

³ For instance, DeAngelo and DeAngelo (1987), Jensen (1989), Magowan (1989), Kester and Luehrman, (1995).

All in all, the value creation at portfolio companies is a complex process whereby different determinants work together with a significant level of interdependence. As illustrated in figure 2, for the sake of simplicity and to expose the theoretical and empirical background on buyouts' value creation, we followed a conceptual framework similar to the one presented by Berg and Gottschalg (2005), distinguishing between primary drivers (the ones with a direct bottom line effect through operating improvements or strategic adjustments) and secondary drivers (which do not have a visible impact on financial metrics but support and enhance the effects of primary levers).

Figure 2 – Conceptual framework of buyouts value creation



2.3 Do Buyouts lead to superior operating performance?

The first wave of buyouts (1980s): Empirical evidence from the US and UK

Empirical studies from the first wave of PE buyouts in the US and UK seem to gather consensus that, on average, there is a positive and statistically improvement of the operating performance of portfolio companies in the years subsequent to the announcement of the buyout (most studies focused on the first 2 or 3 years).

For instance, Kaplan (1989) examined the performance of 48 large MBOs completed in the US during the 1980-86 period and found that, 3 years after the buyout, portfolio companies' EBITDA and other cash flow measures outperformed their industry counterparts. These findings are consistent with identical studies (Bruton et al. (2002), Bull (1989), Ofek (1994), Opler (1992), Singh (1990), Smart and Waldfogel (1994)).

By the same token, Holthausen and Larcker (1996) examined the performance of a sample of 90 reverse LBOs and found that the accounting performance is significantly better than their industries at the time of the IPO and for at least the subsequent four years, consistent with a similar study on reverse LBOs by Muscarella and Vetsuypens (1990).

Using plant level data, Lichtenberg and Siegel (1990) studied a broad sample of 1,100 US manufacturing firms involved in LBOs during the 1981-86 period and reported significantly higher productivity gains (about 14%, measured by a total factor productivity analysis at the plant level) when compared to other plants in the same industry. According to these authors, productivity gains are mostly explained by lower input growth rather than higher output growth.

Similarly, UK evidence from the 1980s also suggests that buyouts improve significantly the financial performance of target firms (Wright, Thomson and Robbie (1992); Wright, Wilson and Robbie (1997)).

The subsequent wave(s) of buyouts (1990s and 2000s): Empirical evidence from the US and UK

Contrarily to the 1980s findings, the evidence of the more recent wave(s) is mixed with no clear evidence of superior economic performance in the years following the buyout.

Guo et al. (2011) studied 192 LBOs completed in the US during 1990-2006 and reported operating gains substantially smaller than those found in the 1980s studies (depending on the selected indicator, the median performance was not always significantly different from the control group). Moreover, these authors found that LBOs in this period appear to use less leverage than their predecessors from the 1980s.

Other studies of the US buyout market show either deterioration of post-buyout performance or non-conclusive findings of improvements (Jelic and Wright (2011), Weir and Laing (1998), Weir et al. (2012)).

Empirical research of buyouts in the UK seems to support the “Jensen’s hypothesis”. Based on company-level data, Amess (2002, 2003) presented evidence from a panel of 78 UK manufacturing firms engaged in MBOs during 1986-97 and show significant operating improvements in the years following the buyout, reporting positive productivity

effects (using an augmented production function approach) and substantial technical efficiency gains (using a stochastic production frontier approach). The findings of Amess (2002, 2003) were subsequently corroborated by a broader study of 36,000 manufacturing plants in the UK (Harris et al., 2005) and are consistent with the results of Cressy et al. (2007) which found that over the first 3 post-buyout years the companies backed by PE firms have outperformed comparable non-buyout companies. Likewise, a more recent study of thousands of PE-backed buyouts during 1995-2010 reported superior profitability and growth of portfolio companies in the period before and during the recent global recession, relative to a benchmark of matching firms (Wilson et al., 2012).

Empirical evidence from Continental Europe

Existing studies have been mostly focused in the US and UK markets with little evidence for PE buyouts in Continental Europe.

To the best of our knowledge, the study of Scellato and Ughetto (2013) is the only one comprising pan-European deals⁴. The authors used a sample of 241 private-to-private buyouts completed between 1997 and 2004 and a control group of non-buyouts to explore the effects on size, profitability and productivity. While their results suggest a positive impact on growth measures (assets and employment), there is no clear evidence of productivity gains and the authors estimate lower operating profitability for buyout firms with respect to the control group after 3 years upon completion of the deal.

Other studies have been made in specific countries. In France, Desbrières and Schatt (2002) found that LBOs led to short-term reductions in the abnormal return on invested capital and a significant reduction in margin ratios which contrasts with the later results of Boucly et al. (2011) that show a large and statistically significant increase in portfolio companies' profitability after the LBO using broad sample of 839 deals for the 1994-2004 period.

⁴ However, we note that Acharya et al. (2009) used proprietary data to study 395 buyouts in Europe and found higher abnormal performance at the equity level which the authors associate with a stronger operating improvements (at firm level) in all operating measures relative to quoted peers.

Lastly, Bergström et al. (2007) shown that buyouts in Sweden outperformed non-buyout comparable firms while Vinten (2007) provided evidence of relative underperformance of portfolio companies in Denmark.

In the end, existing research suggests that the study of operating improvements caused by PE buyouts in Continental Europe lacks further empirical work, especially when the results of the most wide-ranging study of Scellato and Ughetto (2013) are not consistent with the average results from the US and UK. Moreover, we found no study dealing with risk adjusted operating returns which, we believe, is crucial to test any value creation. As such, we advance with the following research hypothesis.

H1: PE-backed buyouts show higher risk adjusted performance in comparison to non-buyouts.

2.4 The potential determinants of buyouts' value creation

2.4.1 Do Buyouts improve profitability through cost savings?

Theoretical discussions report that jobs and salary cuts are one of the most common instruments to improve profitability (e.g., Butler (2011), Easterwood et al. (1989)). Indeed, it is undeniable that one of the most controversial discussions surrounding PE buyouts concerns the alleged negative consequences on employment and wages placing increasing pressure in the hands of policymakers. Looking at the empirical evidence, are there reasons to believe that PE investors expropriate value from the portfolio companies' employees?

Research from US buyouts during the 1980s is not conclusive. Kaplan (1989) reported a median change of 0.9% in employment levels for buyout companies (4.9% growth for a subsample of buyouts without large post-buyout divestitures) while Muscarella and Vetsuypens (1990) and Opler (1992) found no relevant changes in employment. The study of reverse LBOs by Holthausen and Larcker (1996) also reported no evidence that the staffing levels of reverse-LBO firms are different from their industries either before or after the reverse LBO. These results contrast with the study of Lichtenberg and Siegel

(1990) which found that labour tend to decline after the buyout relative to the industry average. Lichtenberg and Siegel (1990) have also suggested that LBOs are a production-labour using and non-production-labour saving organizational innovation since the ratio of non-production labour costs declined sharply after the LBO while production worker wage rates increased.

Evidence from the UK is not conclusive as well. Early studies suggested that layoffs happened mostly at the time of the ownership change which might be explained by the fact that UK buyouts in the 1980s were mainly focused in restructuring troubled companies, reflected in job savings in the longer run (Wright et al., 2009). This line of reasoning finds support in the study of Cressy et al. (2007) which suggests that, to achieve efficiency gains, UK buyouts bring quick and significant job cuts in target companies during the first 4 years of the holding period (relative to the control group) but employment rises thereafter. As such, both studies provide some evidence that an initial period of rationalisation prepares ground for sustainable job creation in the future. Other studies in the UK claim that LBOs per se do not destroy jobs (Amess and Wright, 2007, 2012) but report significantly lower wage growth vs non-LBOs in the same period (Amess and Wright, 2007). In contrast, Jelic and Wright (2011) found a significant increase in employment following the buyouts whereas a survey with 148 usable questionnaires from Bacon et al. (2004) reported that buyouts resulted in higher employment, the adoption of new reward systems and higher staff involvement, in line with the resource based view and against the traditional cost reduction approach.

The research carried with deals from Continental Europe does not support the view that buyouts affect negatively employment and/or wages. For instance, Scellato and Ughetto (2013) found that pan-European buyouts have a significant and positive impact in employment growth both in the short and mid run, consistent with empirical evidence on French deals (Boucly, 2011).

Overall, the evidence of value creation through staff cost cuttings remains mixed and, once again, depends largely on the empirical studies carried using data from buyouts in the US and UK. As such, despite all the political and unions' discussions, based on existing empirical studies we cannot conclude that buyouts do have a significant impact on employment and wages.

Following the theoretical and empirical discussions, we advance with the following hypotheses:

H2: Higher labour force productivity exert a positive and significant impact in the economic performance of portfolio companies.

H3: Reductions of the employees' remuneration exert a positive and significant impact in the economic performance of portfolio companies.

Beyond the cost with employees, many authors argue that PE firms bring a new culture of rationalization to portfolio companies which tighten their overall corporate spending (e.g., Magowan (1989), Anders (1992), Holthausen and Larcker (1996)).

The promotion of a less bureaucratic organizational structure with reduced central overheads is one of the most common measures (e.g., Easterwood et al., 1989). Bruton et al. (1989) found that the ratio of SG&A to sales in portfolio companies declined significantly during the holding period, consistent with the evidence that a significant fraction of productivity gains in M&A comes from reductions in central office overheads Lichtenberg and Siegel (2008).

Other cost items were also examined in empirical studies, especially at the gross margin level (e.g., Muscarella and Vetsuypens (1990), Harris et al. (2005)). For instance, Harris et al. (2005) suggest that portfolio companies achieved higher operating performance by lowering the labour intensity of production through the outsourcing of intermediate goods and materials.

For publicly listed companies, the cost savings from going private may also include the salaries and overheads for stockholder relations departments, as well as the management time spent dealing with public stockholders, financial analysts and the financial press (e.g., DeAngelo and DeAngelo (1987), Magowan (1989)).

Consequently, we hypothesize that other cost cuttings may explain part of the change in the economic performance of portfolio firms.

H4: Reductions of overheads costs exert a positive and significant impact in the economic performance of portfolio companies.

H5: Reductions of intermediate consumption (higher industrial outsourcing) exert a positive and significant impact in the economic performance of portfolio companies.

2.4.2 Do Buyouts optimize Investment Requirements?

Along with operational cost savings, optimization programmes may seek to improve the productivity of the capital employed. For instance, portfolio companies may be incentivized to reduce their Capex (e.g., Anders (1992), Butler (2001)), to make better use of their assets (e.g., Bull 1989) or to reallocate funds from low value added industrial spending to commercial and marketing campaigns (Anders, 1992).

Early evidence from buyouts in the US (1980s) suggested that portfolio companies reduced their Capex relative to the pre-buyout years and the respective control groups (e.g., Kaplan (1989), Muscarella and Vetsuypens (1990), Opler (1992)). Opposite results were found by Boucly et al. (2011) in French PE buyouts which reported higher Capex growth vs. non PE-backed firms.

Some authors argue that R&D investments might be an additional source of savings as many companies were found to put their R&D budgets under more scrutiny (e.g., Butler, 2001) after the buyout. However, we are still lacking an adequate level of empirical research to draw firm conclusions. In one of the few studies on this matter, Long and Ravenscraft (1993) found a large and significant cut of R&D intensity (measured by R&D/sales) in 72 LBOs in the US, which the authors related to the discipline effect of high financial leverage. Nevertheless, these significant cutbacks in R&D spending were found to have no statistically effect on operating performance.

With contrary findings, a broader study carried by Lichtenberg and Siegel (1990) on 1,100 LBOs in the US for the same period (1980s) suggested that the R&D intensity of firms involved in LBOs increased substantially.

In our view, the findings of Lichtenberg and Siegel (1990) seem to be more consistent with the entrepreneurial and growth mind-set introduced by the PE investors or at least that post-buyout companies withdraw resources from those low profitable projects not likely to be turnaround which normally implies exiting uncertain R&D projects. As such, rather than a straightforward spending cut, the main question mark seems to be whether

strategic resources (capital and management time) are taken apart from negative net present value projects and allocated into value creative projects (Easterwood et al., 1989)

Lastly, some authors claimed for a long time that PE investors improved capital productivity ratios a portfolio companies through a better working capital management (e.g., Baker and Wruck (1989), Kester and Luehrman (1995)). For instance, the case study of Scott's LBO in the US described the better planning of the timing and cash management, the pressure to negotiate with suppliers to obtain more favourable terms on payments and inventories schedules (Baker and Wruck, 1989). Several empirical studies on the first wave of buyouts (in the US and UK) seem to support this hypothesis (e.g., Kitching (1989), Singh (1990), Wright et al. (1992)) but more recent deals do not gather the same consensus. For instance, while Wilson et al. (2012) found that PE-backed buyouts in the UK experienced improved working capital management during the recent global recession, Guo et al. (2011) examined US buyouts over the 1990-2006 period and found no significant results from the post-buyout change in the net working capital to sales ratio.

Overall, we believe the buyout effects on investment strategies is still not fully understood with the few studies being highly concentrated in the US and UK and showing no conclusive results. We advance with the following research hypotheses.

H6: Reductions of capital expenditure levels exert a positive and significant impact in the economic performance of portfolio companies.

H7: Reductions of working capital levels exert a positive and significant impact in the economic performance of portfolio companies.

2.4.3 Do Buyouts mitigate Agency Costs? Evidence of the debt discipline effect

According to our conceptual framework (adapted from Berg and Gottschalg, 2005), one of the mechanisms contributing to reduce agency risks is the effect of debt discipline which supports and enhances the positive impact of the primary drivers described previously (cost cuttings, better asset utilisation, etc.).

Several authors stressed the key role of debt as a vehicle to limit the waste of free cash flow by putting managers under pressure to service debt payments and therefore reducing managers' discretion over corporate spending (e.g., Baker and Wruck (1989), DeAngelo and DeAngelo (1987), Jensen (1986, 1989), Magowan (1989)). In this sense, financial leverage works as a monitoring and incentive device, especially in slow-growing or shrinking firms with high free cash flow available (Jensen, 1989) and when more restrictive and short-term debt is issued (e.g., Cotter and Peck (2001), Vinten (2007)).

Kester and Luerhman (1995), for instance, suggest that equity and debt are not merely different types of financial claims since the capital structure acts as real instrument of governance. As such, LBOs may play a key role in enhancing firm value through the implementation of the right combination of debt and equity.

“By its very nature, debt constitutes a fairly rigid, rules-based approach to governance...In general, a business that has easily redeployable assets and that faces relatively few good growth opportunities will be better governed by the simple, low-cost, rules-based regime provided by debt default. By contrast, businesses with highly attractive growth opportunities or a need for functionally specific assets (dedicated to a particular customer or supplier, locationally fixed, or dependent on specific human capital, for example) will be better governed by a regime dominated by equity. Such businesses typically require substantial managerial discretion and administrative flexibility. But businesses change over time and so, too, should the type of governance they employ.” Kester and Luerhman (1995)

It is worth noting that another positive effect of debt has been associated to “outsourced governance” coming from banks and bondholders which have the right incentives to monitor and control the management behaviour (Berg and Gottschalg, 2005) while debt covenants establish objective constraints for the management's discretionary power (e.g., Lichtenberg and Siegel, 1990).

Although we found empirical evidence consistent with the hypothesis that debt has a discipline effect on managers (e.g., Bull (1989), Cotter and Peck (2001), Guo et al. (2011), Muscarella and Vetsuypens (1990), Tykvová and Borell (2012)) other studies reported no meaningful relation between changes in financial leverage and economic performance (e.g., Bergström et al. (2007), Holthausen and Larcker (1996), Thomson et al. (1992),

Vinten (2007)) and no relationship between the ratio of undistributed cash flow to equity value and the decision of going private or the premium paid to stockholders of going private firms (Lehn and Poulsen, 1989).

H8: Higher financial leverage leads to a positive and significant impact in the economic performance of portfolio companies.

2.4.4 Do Buyouts benefit from the Parenting Advantage?

Like a specific business may benefit from being part of a larger corporation, the PE specialist *per se* may create value in portfolio companies of its “family” (Berg and Gottschalg, 2005)

Value creation has been associated to the PE specialist in several ways. First, they are able to share unique financial and management expertise (e.g., Anders, 1992). Second, PE investors have typically a time horizon that is long enough to restructure underperforming companies and short enough to give management teams the right incentive devices. This contrasts with companies not owned by PE investors where the time horizon is often too short or too long (Bergström et al., 2007). Third, PE firms can add value by offering a valuable network of contacts to the buyout company, including headhunting, finding the right business partner or raising funds thanks to their strong reputation in capital markets (Bergström et al. (2007), DeAngelo and DeAngelo (1987), Kester and Luehrman (1995)).

“More so than the other directors, the lead representative serves as the CEO's sounding board on both day-to-day operations and long-term decisions. In addition to contributing an understanding of what's involved in running a company, this individual is expected to listen, ask questions, react to ideas, and suggest alternative ways to address problems and opportunities.... (PE investors) also assumes primary responsibility for maintaining relationships with banks and subordinated lenders, and it helps obtain additional capital as needed for strategic investments. (...) LBOs, instead of just making management pressured to sell assets and quickly pay debt, may be the right driver to search for good new investment opportunities in their industry.” Kester and Luehrman (1995)

According to this view, different investors' characteristics will likely impact the performance of the target firms (Scellato and Ughetto, 2013).

Empirical studies have examined the impact of different dimensions of the alleged parenting advantage. For instance, more experienced investors may have higher likelihood to create value in portfolio companies due to their broader knowledge of different industries, previous background on restructuring businesses and wider network of contacts (Scellato and Ughetto, 2013). Previous research suggested that PE firms experience leads to higher levels of growth at the portfolio companies (Meuleman et al., 2009) and lower bankruptcy risk (Tykvová and Borell, 2012).

A common proxy to measure experience is the size of the PE firm's portfolio (Scellato and Ughetto, 2013). However, note that since large portfolios typically mean lower time available to advise each portfolio company (Scellato and Ughetto, 2013) this may also work negatively the prospects of portfolio companies (e.g. Cumming & Johan, 2007). As such, we advance with the following hypothesis:

H9: The larger the PE firm's portfolio, the higher the economic performance of portfolio companies.

It has also been studied the impact of investor's affiliation on firm's performance. In this respect, some authors suggest that independent PE firms are relatively more concerned in building a respectable track record of successful exits to present in their subsequent fundraisings (Scellato and Ughetto, 2013). Ceteris paribus, this should have a positive impact in economic performance of portfolio companies.

H10: Independent PE firms exert a positive and significant impact in the economic performance of portfolio companies.

Furthermore, in syndicated PE deals, many PE investors share the ownership of portfolio companies. The main idea behind the syndicated deals is to come up with additional resources and risk sharing relative to stand-alone investors (Scellato and Ughetto, 2013). Such complementary capabilities may result in superior economic performance at firm level (Cumming and Walz, 2010). On the other hand, the co-existence of different investors may induce to moral hazard, free-riding and agency problems (e.g. Scellato and Ughetto (2013), Tykvová and Borell (2012)).

H11: Syndicated deals exert a positive and significant impact in the economic performance of portfolio companies

Lastly, some authors argue that the geographical proximity between investors and portfolio companies has a higher likelihood of superior performance, essentially due to the costs and effectiveness in providing monitoring and advice to portfolio companies as well as addressing potential asymmetric information or agency problems (Scellato and Ughetto, 2013).

H12: Domestic PE investments exert a positive and significant impact in the economic performance of portfolio companies.

3. Methodology

3.1 Assessing the Buyouts Value Creation

To evaluate the value creation at portfolio companies we measured the statistical significance of the risk-adjusted returns over a period of 3 years after deal completion and against a sample of comparable firms. A Wilcoxon signed rank test was used to determine the statistical significance of the economic performance, in line with the majority of similar studies (e.g., Kaplan (1989), Holthausen and Larcker (1996), Guo et al. (2011)). The big advantage to other methods (e.g. t-test) is that normality assumptions are not required under this non-parametric statistical test.

Furthermore, following previous studies (e.g., Kaplan (1989), Cressy et al. (2007), Scellato and Ughetto (2013)), we considered a time-window extending from one year before the buyout to three years after the deal as a reasonable period to experience tangible effects in the underlying performance of targets.

Overall, our approach stems from the idea that a profitability analysis per se is not sufficient to prove that the PE buyout has created value. As such, we use an economic value added approach, measuring for both the portfolio companies and the control group, the difference between the returns on invested capital (ROIC) and the respective weighted average cost of capital (WACC) which we define as the “Economic Return” (“ER”).

$$ER = ROIC - WACC$$

Note that our measure of the cost of capital inevitably implied important assumptions.

First, the assumptions for the capital structure. For buyout companies, we used the structure implemented at the time of the buyout which we have assumed constant until $t+3$. Although we acknowledge this may be a rather strong assumption, there is no conclusive evidence that financial leverage is significantly reduced in the years following the buyout⁵. Furthermore, for the year before the buyout ($t-1$) we assumed the implied

⁵ For instance, Kaplan (1991) found that firms acquired in LBOs over 1979-86 and that remained privately-owned at the end of 1989 had leverage ratios comparable to those at the time the LBO was completed. Furthermore, in a more recent study, Cohn, Mills and Towery (2013) found that firms do not reduce leverage after LBOs, even if they generate excess cash flows. These authors suggest that “*an assumption that debt remains at its level immediately after the buyout for at least several years is justified.*”

equity value from the deal discounted for a typical acquisition premium: we used a 26% deal premium based on the average premium paid on 225 institutional buyouts carried in the E.U. with public companies during the 2000-2011 period⁶. Lastly, the capital structure of the control group was based on the historical market values of equity and debt.

Second, the cost of equity assumptions. We used the capital asset pricing model framework assuming (1) a standard risk free rate of 3%⁷ (2) a standard equity risk premium of 6%⁸, (3) and for the beta assumptions we considered the median asset beta of the corresponding sector (i.e. the selected peer group for each buyout company) computed through a 2-year historical regression (using weekly returns and the major domestic index of each stock) and the “Bloomberg adjustment”⁹. Thereafter we have re-leveraged the asset beta using the capital structure of the buyout. Note that for each company of the peer group we use directly the adjusted betas from the historical regression. Lastly, (4) the cost of equity for the buyout companies includes a standard 4% illiquidity premium¹⁰.

Third, we computed the proportion of net interest payments over the net debt to get the best proxy for the cost of debt. Although we acknowledge such an accounting measure may differ in some cases for the real return required by debt holders we believe that on average this should be an objective and unbiased estimate for a relatively wide sample of our study. Furthermore, for the sake of preserving the economic equilibrium we have set the cost of debt to be no higher than the cost of equity.

Lastly, for the income tax rate we assumed the effective tax rate.

⁶ Based on the Zephyr database (from Bureau Van Dijk’s) and taking into account the difference between the equity deal value and the closing share price at the rumour date.

⁷ We considered 3% as a normalized riskless return to invest in European equities, consistent with the historical average of the Germany’s 10-year sovereign bonds over the past 15 years. We considered the Germany’s sovereign bonds (AAA rating) as a reasonable proxy of a risk-free investment in this region.

⁸ Widely used from industry practitioners and consistent with the historical average spread between the returns of the S&P 500 and the US sovereign bonds over the 1928-2014 period.

⁹ Adjusted beta = 0.67 (Raw Beta) + 0.33 (1.00). The raw beta is modified by the assumption that a security’s true beta will move towards the market average over time.

¹⁰ Using data from 1984-2004, Venture Economics estimated that the returns to venture capital investors have been ~ 4% higher than the returns on traded stocks. As such, we may attribute this difference to illiquidity and add it on as the “illiquidity premium” for private companies.

3.2 Assessing the Determinants of Value Creation

To assess the determinants of value creation we have run OLS regressions to explain the relative change in the economic return of portfolio companies using several explanatory variables (check table 1 below).

Our regression analysis includes two models. Model I uses industry adjusted variables (i.e., each variable adjusted by the median change in the respective control sample's variable) while Model II considers non-adjusted variables (in this case we control industry effects with industry dummies).

Note that only the compound annual growth rate (CAGR) of sales did not come directly from the previous theoretical discussion. Still, we applied this variable in our regression to capture indirect effects of sales growth on profitability: mainly operating leverage gains but also other factors such as the increasing bargaining power with suppliers.

Model I - Adjusted variables

$$(1) \Delta ER_i = \beta_1 + \beta_2 \text{SalesCAGR}_i + \beta_3 \text{Labour}_i + \beta_4 \text{Wage}_i + \beta_5 \text{Overheads}_i + \beta_6 \text{Intemediate}_i + \beta_7 \text{Capex}_i + \beta_8 \text{WK}_i + \beta_9 \text{Leverage}_i + \beta_{10} \text{Portfolio}_i + \beta_{11} \text{Syndication}_i + \beta_{12} \text{Country}_i + \beta_{13} \text{Independent}_i + \mu_i$$

Model II - Raw variables with industry dummies

$$(2) \Delta ER_i = \beta_1 + \beta_2 \text{SalesCAGR}_i + \beta_3 \text{Labour}_i + \beta_4 \text{Wage}_i + \beta_5 \text{Overheads}_i + \beta_6 \text{Intemediate}_i + \beta_7 \text{Capex}_i + \beta_8 \text{WK}_i + \beta_9 \text{Leverage}_i + \beta_{10} \text{Portfolio}_i + \beta_{11} \text{Syndication}_i + \beta_{12} \text{Country}_i + \beta_{13} \text{Independent}_i + \sum_{j=1}^7 \beta_j \text{Industry}_{j,i} + \mu_i$$

Table 1 - Variables used in the multivariate analysis

| Variables | Definition / Observations |
|--|--|
| Dependent Variable | |
| | Economic Return: ROIC ⁽¹⁾ - WACC. |
| Δ Economic Return | ⁽¹⁾ ROIC = EBIT (1- effective tax rate) / Invested Capital ⁽²⁾ . ⁽²⁾ Invested Capital = Tangible Assets + Goodwill + Other Intangibles + Inventories + Receivables + other current assets - Payables - other current liabilities |
| Explanatory Variables - Primary Drivers | |
| Sales CAGR | Compound annual growth rate of sales (t+3 vs t-1) |
| Labour Productivity | Sales per employee CAGR (t+3 vs t-1) |
| Wage | Cost per employee CAGR (t+3 vs t-1) |
| Δ Overheads to Sales | Change of the ratio: (Total Operating Costs - Cost of Sales) / Sales |
| Δ Intermediate Costs to Sales | Change of the ratio: (Sales - Value Added) / Sales |
| Δ Working Capital | Change of the ratio: (Inventories + Receivables + Other current assets – Payables – other current liabilities) / Sales |
| Δ Capex | Change of the ratio: Capex / Sales |
| Explanatory Variables - Secondary Drivers | |
| Δ Leverage | Change of the ratio: Net Debt ⁽³⁾ / EBITDA. ⁽³⁾ Net Debt = Long-term loans + short term loans - cash & equivalents |
| Portfolio | Logarithm of the number of companies in the lead investor's portfolio (in the year of the buyout). |
| Syndication | Dummy variable that equals one in case of a syndicated deal; 0 otherwise. |
| Country | Dummy variable that equals 1 if the fund belongs to the country of the PE-backed company; 0 otherwise |
| Independent | Dummy variable that equals 1 if the private equity fund is a private equity firm investing its own capital; 0 otherwise |
| Industry | Dummy variables to control for the industry effects (when variables used in the regression are not adjusted with medians from the control sample) |

Note: all changes relate to the year t+3 vs t-1 except for Net Debt to EBITDA where we use t+1 vs t-1

4. Sample and Data

4.1 Buyouts sample

Our sample consists of firms based on the E.U. that underwent buyouts between 2006-11. Data on the buyouts was collected from the Bureau Van Dijk's Zephyr and Mergermarket databases (two the most comprehensive commercial databases of deal information), extracting all completed transactions classified as "institutional buyout" and financed through "private equity" with a minimum percentage stake of 50%. The accounting data associated to the buyout companies was extracted from the Bureau Van Dijk's Amadeus database.

The sample excludes banks and other financial institutions as well as all holding companies (for all companies classified in the database as "holdings" we have run a manual web search to properly allocate them to their correct industry; those who were confirmed to be effectively "holdings" were removed from our sample). Lastly, we have also excluded all the companies with no reported equity deal value (this is a key variable to estimate the capital structure before and after the buyout).

Our final sample consists of 159 buyouts after eliminating all companies with no available financials. The tables below show the breakdown of the sample by buyout year and sector.

Table 2 – Buyouts breakdown by year

| Buyout Year | % of Sample | Observations |
|-------------|-------------|--------------|
| 2006 | 21% | 33 |
| 2007 | 22% | 35 |
| 2008 | 22% | 35 |
| 2009 | 11% | 18 |
| 2010 | 21% | 33 |
| 2011 | 3% | 5 |

Table 3 – Buyouts breakdown by sector

| Sector | % of Sample | Observations |
|-----------------------------------|-------------|--------------|
| Agriculture, Forestry, Fishing | 24% | 38 |
| Mining & Construction | 6% | 10 |
| Manufacturing | 25% | 39 |
| Transportation & Public Utilities | 12% | 19 |
| Wholesale Trade & Retail | 14% | 23 |
| Finance, Insurance, Real Estate | 6% | 10 |
| Services | 13% | 20 |

As a remark, we associate less deals in our sample in 2009 to the massive drop of PE investment in that year (55% drop vs 2008 according to data compiled from the European Private Equity & Venture Capital Association) while only 3% of deals in 2011 is solely explained by the lack of financial data (for t+3, i.e. 2014) available at the time of this study.

Lastly, over 70% of the sample comprise deals where the portfolio company is located in the same country of the PE firm while 60% of the companies were acquired by an independent PE firm. The majority of the sample comprise non-syndicated deals (81%).

4.2 Control group sample

The assessment of the impact of buyouts on the performance of PE-backed companies requires the identification of an appropriate control group to control for economy-wide and industry effects: this is especially important in our study which focuses on the 2006-2011 period (highly impacted by years of economic crisis). As such, our industry adjusted change of economic performance equals the change of the economic return for the portfolio company minus the median change of the matched control sample over the same relevant period.

Using a similar methodology to Kaplan (1989), the control group firms are those that have the same 3-digit SIC code of the buyout companies. Furthermore, we have limited the sample to listed companies with headquarters in the E.U. Lastly, we have eliminated all the companies classified as “holdings”. Like in the case of buyouts, accounting data was extracted from *Bureau Van Dijk’s Amadeus* database.

4.3 Descriptive statistics

Table 4 presents a number of descriptive statistics for our buyouts sample (before industry adjustments) and table 5 outlines the variables adjusted by industry effects.

Descriptive statistics in table 4 reveal a 2.7% median negative economic return on portfolio companies in the year before the buyout and show that, three years after the deal, the median economic return has further deteriorated to -5.3%. When adjusted for the peers' performance (table 5), we observe a median change of -1.9% in economic returns. Still, this result should be taken with caution given the relatively high standard deviation (30.6%).

We also highlight a considerable increase in the pace of growth of portfolio companies (+4.3% median sales CAGR) during the first three years after the buyout as shown in table 4. Moreover, in table 5 we observe that buyout companies were able to grow their sales while their industry counterparts have declined in this period (+6.9% median sales CAGR after adjusting for industry effects). It is worth mentioning, however, that sales growth statistics may reflect not only the organic performance but also the effects of external growth and the translation effect of foreign currency.

Furthermore, table 4 shows some deterioration both of the ROIC and EBITDA margins of portfolio companies. This was already expected, given the challenging economic environment in our selected period. Note that when adjusted for industry effects, the median change in margins is +0.6% suggesting that the weaker operating performance is in effect a result of broad macro factors.

Surprisingly, the cost of capital (WACC) and financial leverage (net debt / EBITDA ratios) were relatively unchanged in portfolio companies. As shown in table 5, even when adjusted for industry peers, the median value of Net Debt / EBITDA ratios show a small increase between t-1 and t+1 (from -0.1x to 0.1x).

The annual growth rate of the sales per employee three years after the buyout was positive both in raw statistics (+2.0% median and +4.6% average) and industry adjusted statistics (+0.5% median and +1.8% average). The annual growth of the cost per employee was also positive (+0.9% median and +2.4% average) but still slightly lower than the non-buyout companies (-1.8% median CAGR and -0.6% average CAGR).

Table 4 – Descriptive statistics of our selected buyouts sample

| Variables | Average | Median | Standard Deviation | 1st Quartile | 3rd Quartile |
|----------------------------------|---------|--------|--------------------|--------------|--------------|
| Sales CAGR | 4.8% | 4.3% | 16.2% | -4.4% | 10.4% |
| EBITDA margin (t+3) | 10.5% | 9.0% | 19.6% | 2.9% | 19.2% |
| EBITDA margin (t-1) | 11.9% | 10.5% | 14.8% | 1.7% | 18.9% |
| ROIC (t+3) | 10.3% | 5.6% | 25.2% | -0.5% | 16.2% |
| ROIC (t-1) | 13.0% | 7.9% | 24.4% | 1.2% | 22.6% |
| WACC (t+3) | 11.1% | 11.1% | 1.6% | 10.1% | 11.7% |
| Ke (t+3) | 12.1% | 11.6% | 1.9% | 11.0% | 12.6% |
| Kd (t+3) | 7.1% | 7.3% | 3.9% | 3.9% | 10.9% |
| WACC (t-1) | 10.8% | 11.0% | 2.0% | 9.7% | 11.9% |
| Ke (t-1) | 12.6% | 11.8% | 2.4% | 11.1% | 13.0% |
| Kd (t-1) | 7.5% | 7.8% | 3.9% | 5.0% | 11.0% |
| Economic Return (t+3) | -0.7% | -5.3% | 25.1% | -11.9% | 6.3% |
| Economic Return (t-1) | 2.2% | -2.7% | 24.3% | -9.2% | 10.7% |
| Net Debt / EBITDA (t+1) | 3.1x | 0.4x | 6.8x | -0.4x | 3.3x |
| Net Debt / EBITDA (t-1) | 2.2x | 0.3x | 5.4x | -0.5x | 3.1x |
| Sales per Employee CAGR | 4.6% | 2.0% | 14.8% | -3.4% | 7.2% |
| Cost per Employee CAGR | 2.4% | 0.9% | 9.3% | -2.8% | 5.1% |
| Overheads / Sales (t+3) | 60.6% | 55.4% | 34.5% | 31.8% | 87.3% |
| Overheads / Sales (t-1) | 56.1% | 51.8% | 32.1% | 28.8% | 86.6% |
| Intermediate Costs / Sales (t+3) | 68.8% | 72.4% | 27.7% | 52.1% | 100.0% |
| Intermediate Costs / Sales (t-1) | 67.1% | 71.1% | 30.4% | 47.4% | 100.0% |
| Capex / Sales (t+3) | 7.5% | 2.6% | 13.0% | 0.7% | 6.8% |
| Capex / Sales (t-1) | 11.2% | 3.0% | 20.3% | 0.4% | 10.0% |
| WK / Sales (t+3) | 52.2% | 19.1% | 90.0% | 5.9% | 52.4% |
| WK / Sales (t-1) | 52.7% | 21.1% | 94.8% | 7.0% | 47.3% |

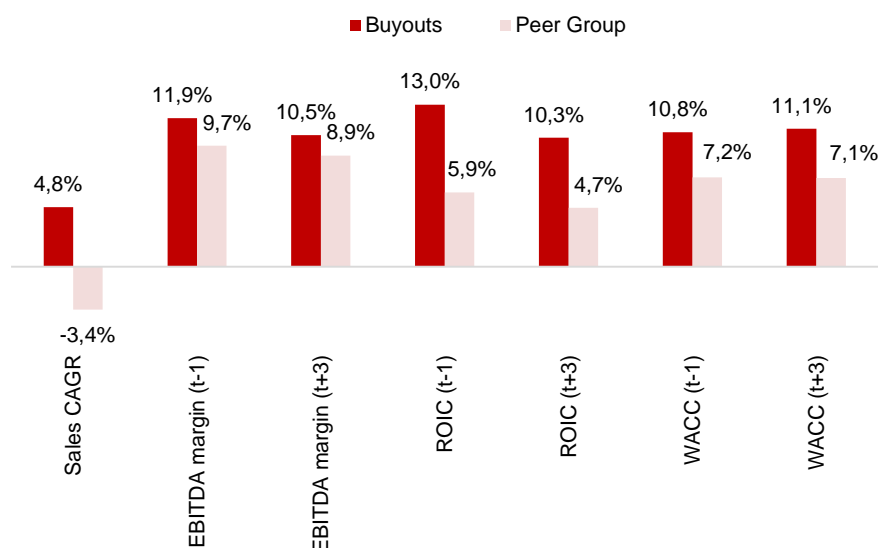
Table 5 – Evolution of key variables adjusted by the respective peer group

| Variables | Average | Median | Standard Deviation | 1st Quartile | 3rd Quartile |
|-------------------------------|---------|--------|--------------------|--------------|--------------|
| Sales CAGR | 8.2% | 6.9% | 18.1% | -2.0% | 18.3% |
| Δ EBITDA margin | -0.6% | 0.6% | 16.5% | -7.8% | 5.5% |
| Δ Economic Return | -1.7% | -1.9% | 30.6% | -15.3% | 9.0% |
| Net Debt / EBITDA (t+1) | 2.3x | 0.1x | 6.8x | -1.2x | 2.5x |
| Net Debt / EBITDA (t-1) | 1.6x | -0.1x | 5.3x | -1.3x | 2.2x |
| Sales per Employee CAGR | 1.8% | 0.5% | 16.2% | -7.8% | 6.0% |
| Cost per Employee CAGR | -0.6% | -1.8% | 10.1% | -7.3% | 3.7% |
| Δ Overheads to Sales | 2.3% | 2.0% | 25.1% | -5.5% | 11.7% |
| Δ Intermediate Costs to Sales | -10.3% | -6.7% | 75.9% | -30.4% | 10.4% |
| Δ Capex to Sales | -1.4% | 0.9% | 20.4% | -3.5% | 5.6% |
| Δ WK to Sales | 0.5% | 1.5% | 98.1% | -18.6% | 15.2% |

Overall, there is considerable dispersion of observations for some variables, especially in the cases of ROIC (and consequently the economic returns), overheads, intermediate costs and working capital, reflected in a significant deviation between average and median values. In the cases of ROIC and working capital, this should be related to different business models (capital intensive vs capital light businesses) and possibly different acquisition policies (e.g. recognition of the goodwill in the ROIC computation). In the cases of overheads and intermediate costs, we note that both items are sensitive to subjective accounting criteria to define which items contribute for the “value added” and the “cost of sales” – these items typically show significant differences across sectors.

In figure 3 we present a comparative view between buyouts and its peer group based on a set of key variables of economic performance.

Figure 3 – Average values of key variables: Buyouts vs Peer Group



Buyout companies tend to show higher margins and ROIC while their cost of capital is naturally higher (by definition, they embark a higher risk profile). The figure also illustrates well the outperformance in terms of sales growth and show the general decline of margins and ROIC.

Table 6 presents industry adjusted statistics split by the buyout year. We highlight that those deals completed in 2006-08 show positive change in economic returns with inverse results for those deals carried over 2009-11. These results suggest a gradual deterioration of economic conditions throughout our selected period.

Table 6 – Industry adjusted statistics: breakdown by buyout year (median values)

| Buyout Year | Δ Economic Return | Sales CAGR | Δ EBITDA margin | Net Debt / EBITDA (t+1) | Net Debt / EBITDA (t-1) | Sales to Employee CAGR | Cost per Employee CAGR | Δ Overheads to Sales | Δ Capex to Sales | Δ WK to Sales |
|-------------|--------------------------|------------|------------------------|-------------------------|-------------------------|------------------------|------------------------|-----------------------------|-------------------------|----------------------|
| 2006 | 3.1% | 8.0% | -1.1% | -0.1x | -0.2x | 4.6% | -1.7% | -4.3% | 2.0% | -10.2% |
| 2007 | 1.3% | 10.0% | 2.3% | 0.5x | 0.8x | 2.9% | 2.7% | 1.7% | 1.4% | 2.3% |
| 2008 | 0.9% | 8.8% | 0.8% | 0.0x | 0.0x | -0.6% | -2.7% | 3.9% | 0.3% | -4.7% |
| 2009 | -4.3% | 2.0% | 0.9% | 0.2x | -0.7x | -7.1% | -0.5% | 8.2% | 0.3% | 9.9% |
| 2010 | -4.6% | 6.1% | -0.5% | 0.0x | 0.0x | -2.9% | -1.2% | 2.0% | 0.4% | 3.0% |
| 2011 | -11.4% | 0.1% | 0.6% | 0.7x | -0.4x | -1.4% | -5.4% | -7.9% | -0.8% | 2.6% |

Lastly, table 7 present the breakdown of the descriptive statistics by sector. Looking at the change in economic returns, Transportation & Public Utilities (12% of total deals) stand out as the best performer while the deals in the Agriculture, Forestry and Fishing sector (24% of our sample) show the worst performance.

Table 7 – Industry adjusted statistics: breakdown by sector (median values)

| Sector | Δ Economic Return | Sales CAGR | Δ EBITDA margin | Net Debt / EBITDA (t+1) | Net Debt / EBITDA (t-1) | Sales to Employee CAGR | Cost per Employee CAGR | Δ Overheads to Sales | Δ Capex to Sales | Δ WK to Sales |
|-----------------------------------|--------------------------|------------|------------------------|-------------------------|-------------------------|------------------------|------------------------|-----------------------------|-------------------------|----------------------|
| Agriculture, Forestry, Fishing | -19.3% | 8.0% | -1.8% | n.a | n.a | n.a | n.a | n.a | n.a | n.a |
| Mining & Construction | -5.8% | 14.4% | 3.6% | -1.7x | -0.8x | 4.0% | 7.5% | -0.6% | 1.7% | -21.0% |
| Manufacturing | -3.5% | 3.2% | 0.8% | 0.0x | 0.8x | -1.7% | -2.6% | -0.3% | 1.3% | 3.0% |
| Transportation & Public Utilities | 5.7% | 10.7% | 3.5% | 2.0x | -0.5x | 4.5% | -2.7% | 3.7% | -5.2% | 5.7% |
| Wholesale Trade & Retail | -2.1% | 13.7% | -0.5% | -0.6x | -0.8x | 2.8% | 0.0% | 1.5% | 0.2% | 4.1% |
| Finance, Insurance, Real Estate | -6.1% | -1.1% | -5.6% | -0.1x | 0.0x | -9.6% | -7.2% | -0.6% | 5.7% | -5.9% |
| Services | -1.3% | 7.9% | -1.3% | 0.3x | 0.1x | -3.7% | -1.8% | 3.5% | 1.1% | -1.6% |

5. Results and Discussion

5.1 Wilcoxon Signed Rank Tests

In this section we present the results of the Wilcoxon signed rank test for the raw variables (table 8) and the variables adjusted by the performance of the peer group (table 9).

Table 8 –Wilcoxon signed rank test (median values) – Raw variables

| Raw Variables | Sample | Median | Statistic test |
|-------------------------------|--------|---------|----------------|
| Δ Economic Return | 159 | -2.2%* | 1.91 |
| Sales CAGR | 159 | 4.3%*** | 3.80 |
| Δ EBITDA margin | 159 | -0.2% | 0.90 |
| Δ Net Debt / EBITDA | 145 | 0.2** | 2.27 |
| Sales per Employee CAGR | 119 | 2.0%** | 2.31 |
| Cost per Employee CAGR | 113 | 0.9%** | 2.03 |
| Δ Overheads to Sales | 154 | 3.3%*** | 3.71 |
| Δ Intermediate costs to Sales | 154 | 0.0% | 0.97 |
| Δ Capex to Sales | 151 | -0.1% | 1.39 |
| Δ WK to Sales | 154 | 1.2% | 0.45 |

Note: ***: significant at the 1% level **: significant at the 5% level, *: significant at the 10% level

Table 9 – Wilcoxon signed rank test (median values) –industry adjusted variables

| Variables | Sample | Median (adjusted) | Statistic test |
|--------------------------------------|--------|-------------------|----------------|
| H1 - Do Buyouts create value? | | | |
| Δ Economic Return | 157 | -1.9% | 0.98 |
| Test of Operating Performance | | | |
| Sales CAGR | 158 | 6.9%*** | 5.53 |
| Δ EBITDA margin | 158 | 0.6% | 0.46 |
| Test of Independent Variables | | | |
| Δ Net Debt / EBITDA | 143 | 0.2* | 1.72 |
| Sales per Employee CAGR | 118 | 0.5% | 0.71 |
| Cost per Employee CAGR | 112 | -1.8% | 1.42 |
| Δ Overheads to Sales | 152 | 2.0% | 1.11 |
| Δ Intermediate costs to Sales | 154 | -6.7%*** | 3.89 |
| Δ Capex to Sales | 147 | 0.9%** | 1.97 |
| Δ WK to Sales | 152 | 1.5% | 0.07 |

Note: ***: significant at the 1% level **: significant at the 5% level, *: significant at the 10% level

There are several results worth highlighting.

First, at 10% significance level, economic returns in portfolio companies declined by 2.2 percentage points three years after the deal. However, when adjusted by industry effects, there is no statistical evidence to support the idea that there is value destruction in portfolio companies after the buyout (p-value is significantly high at 0.33).

Second, results from table 8 show a slightly positive increase in financial leverage (median of 0.2x increase in net debt / EBITDA) after the buyout. When adjusted for industry effects (table 9), portfolio companies still show a slight increase of financial leverage compared to the peer group (0.2x relative change in net debt / EBITDA) with the result being statistically significant on a 10% significance level. Note that since the relative change is quite low we cannot rule out that any potential deterioration of cash generation may have inflated this leverage ratio (rather than a deliberated increase of leverage through a typical LBO). Indeed, descriptive statistics suggest that debt to capital ratios and the weighted average cost of capital have not changed significantly both for portfolio companies and their respective peer group. Overall, these results are consistent with the common view that more recent waves of buyouts employ less financial leverage than their predecessors from the 1980s (e.g. Guo et al. (2011)). This evidence is far from being surprising, especially when our sample is highly skewed to the years of financial crisis with strong pressure to deleverage balance sheets. Indeed, looking at the descriptive statistics by buyout year (table 6) we see that leverage ratios tend to increase in the buyouts carried after the height of the sub-prime while the ones carried before 2008 presented little increase in leverage or even reduction in leverage levels

Third, portfolio companies have grown significantly faster than their peer groups (relative median sales CAGR of +6.9%). Indeed, the overall control sample has effectively shown declining revenues (median CAGR of -4.5%) while buyout companies posted a solid +4.3% annual growth. Note that this result is statistically significant at all levels.

Forth, there is a significant increase in capital expenditure levels of buyouts when compared to their industry counterparts. With 5% significance level we observe that buyouts have increased in almost 100 basis points their capex to sales ratio relative to industry peers. These results are consistent with the study of Boucly et al. (2011) for French buyouts but inconsistent with several others.

Fifth, the results presented in the table 8 (raw data) show a significant increase in the level overheads suggesting that in some extent buyout companies may have boosted their sales growth thanks to relevant “Opex investments”. However, when adjusted by industry effects our results show that buyouts brought no significant changes in the level of overheads costs (table 9). These findings contrast with the common view that the promotion of a less bureaucratic organizational structure reflected in lower central overhead is one of the common measures by PE firms (e.g. Easterwood et al., 1989). Still, we acknowledge the imperfections of our overheads proxy (EBIT – Gross Profit) and that a more sophisticated approach to measure the fixed cost base may yield different conclusions.

Sixth, we report a significant increase in the level of intermediate costs of portfolio companies when compared to the peer group. The relative decline in the ratio of intermediate costs in percentage of sales reached 6.7 percentage points. This magnitude appears to be high and statistically relevant at all levels of significance.

Lastly, in contrast to the results of raw data, when adjusted for industry effects, there is no significant relative gains or losses of labour productivity and we have no evidence of a significant change in the relative cost per employee (this finding is consistent with the results of Bergström et al. (2007)).

5.2 Do Buyouts create value?

Results from the raw data in table 8 suggest that there is value destruction at portfolio companies. However, this result should be taken with caution given the time period used in our study (2006-11, highly impacted by the economic crisis) and a more accurate conclusion should take into account the performance of comparable companies in comparable conditions (table 9).

As such, when adjusted by industry effects, there is no statistical evidence to support the idea that there is value destruction in portfolio companies after the buyout from PE firms. At least, a direct link between value creation and the PE investment is not significant under these results.

What we observe is that portfolio companies have indeed declined their economic return but this evolution was also shared by their respective industry counterparts and it is most likely explained by a more challenging macro environment during this period (rather than the PE investment per se).

All in all, we do not found support for our main hypothesis that PE firms create value in portfolio companies: the evolution of industry adjusted economic returns earned by portfolio companies is not statistically significant.

Furthermore, we found no evidence of a relative improvement or deterioration of operational performance as measured by the EBITDA margins (in both raw and industry adjusted statistics, the change in EBITDA margin is not statistically significant).

These results contrast to the early findings of the 1980s (strong empirical evidence supporting the outperformance of buyouts) and are consistent with recent studies both for the US market (e.g. Guo et al. (2011)) and for Continental Europe (e.g. Scellato and Ughetto (2013)) showing non-conclusive findings of buyouts financial performance in more recent waves of deals.

As a remark, we acknowledge that our findings may be impacted by the high volatility in economic performance (mostly reflected in high standard errors in our ROIC statistics) given the extreme macroeconomic conditions witnessed over the 2006-11 period.

Hence, we highlight the importance of a continued study (probably with broader sample of deals and larger period) of pan-European buyouts carried over the past decade(s).

5.3 Assessing the determinants of the buyouts' value creation

The results from our multivariate regression analysis of the determinants of buyouts value creation are shown in the table 10. Note that seven out of twelve explanatory variables have the expected sign: sales CAGR, leverage, labour, intermediate, working capital, independent and syndication. However, only the Sales CAGR, labour and intermediate variables have reasonable explanatory power in our OLS regressions.

Table 10 – Regression Analysis - Determinants of value creation in buyouts

| Variable | Expected Sign | Industry adjusted variables (Model I) | | | Non adjusted variables (Model II) | | |
|--------------------|---------------|--|--------------------|--------------------|--------------------------------------|-------------------|-------------------|
| | | I | II | III | IV | V | VI |
| Constant | n.a. | -0.07** (0.034) | -0.07** (0.035) | -0.11 (0.133) | -0.31** (0.119) | -0.28 (0.233) | -0.32 (0.238) |
| Sales CAGR | + | 0.51** (0.213) | 0.5** (0.237) | 0.95** (0.388) | 0.69*** (0.243) | 0.74** (0.338) | 0.83** (0.402) |
| Leverage | + | 0.00 (0.005) | 0.00 (0.005) | 0.00 (0.006) | -0.01 (0.006) | -0.01 (0.008) | 0.00 (0.006) |
| Labour | + | 0.37* (0.22) | 0.41* (0.244) | 0.43 (0.371) | 0.39 (0.252) | 0.50 (0.321) | 0.46 (0.396) |
| Wage | - | | -0.16 (0.267) | -0.32 (0.425) | | | -0.66 (0.561) |
| Overheads | - | | 0.04 (0.194) | 0.20 (0.262) | 0.19* (0.103) | 0.16 (0.15) | 0.20 (0.157) |
| Intermediate | - | -0.08* (0.045) | -0.08* (0.045) | -0.1*** (0.035) | -0.10 (0.101) | -0.20 (0.137) | -0.21 (0.148) |
| Capex | - | | | -0.05 (0.283) | | | 0.05 (0.31) |
| WK | - | | | -0.01 (0.072) | | | -0.02 (0.075) |
| Country | + | | | -0.06 (0.09) | | -0.10 (0.092) | -0.08 (0.1) |
| Independent | + | | | 0.02 (0.072) | | 0.03 (0.078) | 0.01 (0.081) |
| Syndication | + | | | 0.10 (0.087) | | 0.13 (0.086) | 0.16* (0.086) |
| Portfolio | + | | | -0.01 (0.047) | | -0.05 (0.045) | -0.05 (0.046) |
| Industry dummies | | No | No | No | Yes | Yes | Yes |
| Sample size | | 110 | 107 | 69 | 112 | 75 | 71 |
| R-squared | | 0.22 | 0.20 | 0.32 | 0.32 | 0.42 | 0.41 |
| Adjusted R-squared | | 0.19 | 0.15 | 0.17 | 0.24 | 0.26 | 0.19 |
| Prob (F-statistic) | | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.04 |

The table reports the results of OLS regressions for the sample of buyouts and the respective peer group. For the sake of synthesis we omit estimated coefficients of industry dummies. Heteroskedasticity robust standard errors in parentheses. ***: significant at the 1% level **: significant at the 5% level, *: significant at the 10% level.

5.3.1 Financial leverage

Although financial debt is often seen as a powerful disciplinary instrument, the univariate analysis showed that the relative increase of financial leverage in buyout companies is not particularly strong. Furthermore, our regression analysis presented in table 10 shows no evidence that an increase of financial leverage leads to a superior economic performance, contrarily to the argument of the disciplinary effect of debt on the management. These results are consistent with the findings of other studies (e.g. Bergström et al. (2007), Holthausen and Larcker (1996), Thomson et al. (1992), Vinten (2007)).

Overall, our results support the idea that although the capital structure may act as a real instrument of corporate governance, there are some adverse consequences of financial leverage that may ultimately offset its benefits. Many authors advanced with the hypothesis that too much leverage may promote a short-term oriented management (given the likelihood of financial distress) and a decline in competitiveness (e.g., Palepu, 1990). In addition, high financial leverage may lead to project selection problems due to managerial risk aversion (Holthausen and Larcker, 1996).

5.3.2 Growth, Capex and the Entrepreneurial mind-set

Results from the regression analysis (table 10) provide strong evidence that buyout companies that show a stronger pace of growth create more value, suggesting that a 100pp increase of annual sales growth (relative to the industry) leads to an increase of economic returns between 20 to 40pp.

In addition, note that our univariate analysis reported a significant increase in capital expenditure levels of buyouts when compared to industry counterparts. Overall, the higher pace of growth combined with a relative increase of capex levels give some support to the argument that PE investors bring entrepreneurial and growth mind-set to portfolio companies (e.g. Berg and Gottschalg, 2005). Taken together, these results suggest that rather than a straightforward spending cut, the key step taken by PE firms is to withdraw resources from low profitable projects and allocate capital to more value creative projects even if it means increasing the level of capex.

However, we highlight that the results from our regression analysis do not provide evidence that changes in capex influence the economic returns of portfolio companies.

On the other hand, we suspect the higher sales growth and capex levels might be related to a more aggressive acquisitive policy of buyout companies thanks to “buy and build” strategies promoted by PE firms (even if the impact of large, transforming acquisitions should have been offset by the use of medians instead of averages). Indeed, since our capex figures were computed from the changes of tangible fixed assets and other intangibles (including goodwill), the relative increase of capex might very well translate higher levels of acquisitions (in percentage of sales) when compared to industry peers.

In any case, and given that margins do not show significant change relative to the peer group (neither working capital levels), this higher pace of growth seems to have been achieved at the expense of higher invested capital as well (including goodwill) and ultimately translated in neutral value creation compared to non-buyout compares. Naturally, a proper assessment of value creation in this case would require a higher time period to assess the mid to long-term impact and consequent value of the projects unlocked by such investments (not reflected in the first 3 years).

5.3.3 Outsourcing and Labour Productivity

Despite our univariate analysis reported no significant gains or losses of labour productivity after adjusting for industry effects (table 9), we found considerable evidence that an increase of labour productivity (measured by the sales per employee ratio) contributes positively to economic returns (table 10). Our regression results imply that a 1 percentage point increase of sales per employee leads to an increase in economic returns of around 0.4 percentage points.

In addition, we report considerable evidence that higher outsourcing has a positive contribution for value creation. More specifically, our results imply that a reduction of 1 percentage point in intermediate consumption (in percentage of sales) leads to a relative increase of around 0.1 percentage points in economic returns.

Combined with the outcome from our univariate analysis (i.e. that buyout companies tend to outsource more and decrease significantly their intermediate costs when compared to industry peers) these results suggest some kind of trade-off between internal and external

resources and are consistent with the argument that portfolio companies achieve higher operating performance by reducing the labour intensity through the outsourcing of intermediate goods and materials (Harris et al., 2005).

5.3.4 Employees' Remuneration

We found no evidence that changes in the wage levels affect the economic returns of portfolio companies. Combined with the results of our univariate analysis that buyouts do not have a significant impact on wages (consistent with the results reported by Bergström et al. (2007)) our findings go against the frequent political and unions' arguments that private equity investments generate returns through the value expropriation from employees. At least, there is no evidence that value is created through wage cuts.

However, it is worth noting that the introduction of buyouts usually bring an adjustment on employees' remuneration, meaning in the most of the cases the design of ownership schemes and performance-based payments which, in part, substitute the traditional salary. As such, it is difficult to draw firm inferences regarding the buyout effect on wages (Wright et al., 2012).

5.3.5 Other findings

We found no significant impact of buyouts on working capital levels neither a significant relationship with value creation. These results are consistent with the finding of Guo et al. (2011) which found no significant changes in the net working capital to sales ratio.

Additionally, the relationship between the level of overheads and value creation is very weak being only significant at 10% level in regression IV.

Looking at the private equity firm related dummy variables, only the one related to syndicated deals provided meaningful results (statistically significant in the regression VI) with a positive coefficient (as expected). All the other dummies related to the independency, localization and experience (portfolio) of PE firms show no explanatory power at all.

Lastly, the results of the regressions using non-adjusted variables with industry dummies show positive and significant coefficients for some industries, namely general manufacturing, business services and transportation & public utilities.

6. Conclusion

In this study we fill in the actual research gap on the value creation of private equity buyouts at portfolio companies with most of the existing empirical research being focused on the post-buyout operating performance without taking into account the potential change in the capital structure of acquired companies. We analysed a sample of 159 pan-European buyouts during the 2006-2011 period using an economic value added approach comparing the relative change of economic returns defined as the excess returns over the cost of capital. Our main result is that, when adjusted by industry effects, there is no evidence to support the hypothesis that private equity buyouts create value in portfolio companies. We acknowledge that our findings may be distorted by an extreme macroeconomic environment in this period, highlighting the importance of further empirical work using a larger period and a broader sample of deals. We also recognize that our methodology implied important assumptions (namely in the definition of the cost of capital) encouraging alternative approaches in future research.

We have also applied a regression analysis to study the potential determinants of the buyouts' value creation. We found no evidence that an increase of financial leverage leads to superior economic performance, contrarily to the argument of the disciplinary effect of debt on the management. We also found some support to the argument that private equity investment bring an entrepreneurial and growth mind-set to the acquired companies, reflected in a higher pace of growth and capex intensity levels. However, if the higher sales growth seem to contribute positively to economic returns the same cannot be said regarding the changes in capex. Furthermore, our results suggest that value can be created in portfolio companies if they reduce their labour intensity through the higher outsourcing of intermediate goods and services. Lastly, this study provided no significant evidence to the arguments that a higher economic performance can be achieved through the reduction of wages, overheads or working capital.

In the end, our results highlight the complexity of the value creation process reflected in the challenging identification and quantification of explanatory variables when the process itself may be better explained by qualitative variables able to reproduce, for instance, new and different strategies implemented by the private equity firm.

References and Bibliography

- Acharya, V., Hahn, M., Hehoe, C. (2009), “Corporate governance and value creation: evidence from private equity”, CEPR Discussion Paper No. 7242.
- Achleitner, A., Braun, R., Engel, N., Figge, C. Tappeiner, F. (2010), “Value Creation Drivers in Private Equity Buyouts: Empirical Evidence from Europe”, *Journal of Private Equity*, 13, pp. 17-27
- Amess, K. (2002), “Management Buyouts and Firm-Level Productivity: Evidence from a Panel of U.K. Manufacturing Firms”, *Scottish Journal of Political Economy*, 49(3), 304-317.
- Amess, K. (2003), “The effects of management buyouts on firm-level technical efficiency: Evidence from a panel of U.K machinery and equipment manufacturers”, *The Journal of Industrial Economics*, 51, pp.35–44.
- Amess, K., Wright, M. (2007), “The wage and employment effects of leveraged buyouts in the UK”, *International Journal of the Economics of Business*, 14(2), pp. 179–195.
- Amess, K., Wright, M. (2012), “Leveraged buyouts, private equity and jobs”, *Small Business Economics*, 38 (4), pp. 419-430
- Anders, G. (1992), “The Barbarians in the Boardroom”, *Harvard Business Review*, 70 (4), pp. 79-87
- Asquith, P., Wizman, T. (1990), “Event risk, covenants, and bondholder returns in leveraged buyouts”, *Journal of Financial Economics*, 27 (1), pp. 195-213
- Bacon, N., Wright, M., Demina, N. (2004), “Management Buyouts and Human Resource Management”, *British Journal of Industrial Relations*, 42 (2), pp. 325-347
- Baker, G., Smith, G. (1998). *The New Financial Capitalists: Kohlberg Kravis Roberts and the Creation of Corporate Value*. Cambridge, U.K.: Cambridge University Press.
- Baker, G., Wruck, K. (1989), “Organizational changes and value creation in leveraged buyouts: The case of the O.M. Scott & Sons Company”, *Journal of Financial Economics*, 25, pp. 163-190
- Belghitar, Y. and Dixon, R. (2012), “Do venture capitalists reduce underpricing and underperformance of IPOs?”, *Applied Financial Economics*, 22, pp. 33–44.
- Berg, A. and Gottschalg, O. (2005), “Understanding Value Generation in Buyouts”, *Journal of Restructuring Finance*, 2:1, pp. 9-37.
- Bergström, C., Grubb, M., Jonsoon, S. (2007). The Operating Impact of Buyouts in Sweden: a Study of Value Creation, *Journal of Private Equity*, 11, pp. 22-39.

- Boucly, Q., Sraer, D., Thesmar, D. (2011), “Growth LBOs”, *Journal of Financial Economics*, 102, pp. 432-453
- Brav, A. and Gompers, P. A. (1997), “Myth or reality? The long run underperformance of initial public offerings: evidence from venture and non-venture capital-backed companies”, *The Journal of Finance*, 52, pp. 1791–821.
- Bruton G., Keels, J., Scifres, E. (2002), “Corporate restructuring and performance: An agency perspective on the complete buyout cycle”, *Journal of Business Research*, 55, pp. 709-724
- Butler, P. (2001), “The Alchemy of LBOs”, *McKinsey Quarterly* (2), 140-151.
- Coakley, J., Hadass, L., Wood, A. (2007), “Post-IPO operating performance, venture capital and the bubble years”, *Journal of Business Finance & Accounting*, 34, 1423–46.
- Cohn, Jonathan B. and Mills, Lillian F. and Towery, Erin (2013), “The Evolution of Capital Structure and Operating Performance after Leveraged Buyouts: Evidence from U.S. Corporate Tax Returns”, *Working paper*, McCombs School of Business, University of Texas
- Cook, D., Easterwood J., Martin J. (1992), “Bondholder Wealth Effects of Management Buyouts”, *Financial Management* 21, pp. 102-113
- Cressy, R., Munari, F., Malipiero, A. (2007), “Playing to their strengths? Evidence that specialization in the private equity industry confers competitive advantage”, *Working paper*, Birmingham Business School and University of Bologna.
- Cressy, R., Munari, F., Malipiero, A. (2011), “Creative destruction? Evidence that buyouts shed jobs to raise returns”, *Venture Capital: An International Journal of Entrepreneurial Finance*, 13:1, pp. 1-22.
- Cumming, D., Johan, S. A. (2007), “Advice and monitoring in venture finance”, *Financial Markets and Portfolio Management*, 21(1), pp. 3–43.
- Cumming, D., Walz, U. (2010), “Private equity returns and disclosure around the world”, *Journal of International Business Studies*, 41(4), pp. 727–754.
- Desbrières, P., Schatt, A. (2002), “The impacts of LBOs on the performance of acquired firms: The French case”, *Journal of Business Finance & Accounting*, 29(5), pp.695–729
- DeAngelo, H., DeAgelo, L. (1987), “Management Buyouts of Publicly Traded Corporations”, *Financial Analysts Journal*, 43 (3), pp. 38-49
- Easterwood, J., Seth, A. and Singer, R. (1989), “The Impact of Leveraged Buyouts on Strategic Direction”, *California Management Review* 32(1), pp. 30-43.

- Ferretti, R. and Meles, A. (2011). Underpricing, wealth loss for pre-existing shareholders and the cost of going public: the role of private equity backing in Italian IPOs, *Venture Capital*, 13, 23–47.
- Goossens, L. & Manigart, S. & Meuleman, M., (2007), "The change of ownership after a buyout: Impact on performance", *Working Paper Series 2007-26*, Vlerick Leuven Gent Management School
- Guo, S., Hotchkiss, E. S. and Song, W. (2011) Do buyouts (still) create value?, *The Journal of Finance*, 66, 479–517.
- Harris, R., Siegel, D. and Wright, M. (2005), "Assessing the Impact of Management Buyouts on Economic Efficiency: Plant-Level Evidence from the United Kingdom", *The Review of Economics and Statistics* 87(1), 148-153.
- Heel, J. and Kehoe, C. (2005), "Why Some Private Equity Firms Do Better than Others", *McKinsey Quarterly* (1), 24-26.
- Hellmann, T. and Puri, M. (2002), Venture capital and the professionalization of start-up firms: empirical evidence, *The Journal of Finance*, 57, 169–97.
- Holthausen, R. and Larcker, D. (1996), "The Financial Performance of Reverse Leveraged Buyouts", *Journal of Financial Economics* 42(3), 293-332
- Jain, B. A. and Kini, O. (1995), "Venture capitalist participation and the post-issue operating performance of IPO firms", *Managerial and Decision Economics*, 16, pp. 593–606.
- Jelic, R., Wright, M. (2011), "Exits, performance, and late stage private equity: the case of UK management buy-outs", *European Financial Management*, 17, 560–93.
- Jensen, M. and Meckling, W. (1976), "Theory of the Firm: Managerial Behaviour, Agency Costs, and Ownership Structure", *Journal of Financial Economics* 3(4), 305- 360.
- Jensen, M. (1986), "Agency Costs of Free Cash Flow, Corporate Finance and Takeovers", *American Economic Review*, 76 (2), pp. 323-329.
- Jensen, M. (1989), "Active Investors, LBOs and the Privatization of Bankruptcy", *Journal of Applied Corporate Finance*, 2 (1), pp. 35-44.
- Kaplan, S. (1989), "The effects of management buyouts on operating performance and value", *Journal of Financial Economics*, 24, pp. 217–54.
- Kaplan, S., (1991), "The staying power of leveraged buyouts", *Journal of Financial Economics*, 29, pp. 287-313
- Kester, C., Luehrman, T. (1995), "Rehabilitating the Leveraged Buyout", *Harvard Business Review*, 73 (3), pp. 119-130

- Kitching, John (1989), “Early Returns on LBOs: A Transatlantic Study Sheds New Light on How and Why They Work”, *Harvard Business Review*, 67 (6), pp. 74-81
- Lerner, J., Sorensen, M., Strömberg, P. (2011), “Private Equity and Long-Run Investment: The Case of Innovation”, *The Journal of Finance*, 66 (2), pp. 445-477.
- Leslie, P. and Oyer, P. (2008), “*Managerial Incentives and Value Creation: Evidence from Private Equity*”, Working Paper, Stanford-GSB
- Lichtenberg, F., Siegel, D. (1990), “The Effects of Leveraged Buyouts on Productivity and Related Aspects of Firm Behaviour”, *Journal of Financial Economics* 27(1), 165-194.
- Lichtenberg, F., Siegel, D. (1989), “The Effect of Takeovers on the Employment and Wages of Central-Office and Other Personnel”, NBER Working Paper No. 2895
- Lie, E. (2001), “Detecting abnormal operating performance”, Revisited, *Financial Management*, 30, pp.77–91.
- Long, W., Ravenscraft, D. (1993), “LBOs, debt and R&D intensity”, *Strategic Management Journal*, 14, pp. 119–135.
- Magowan, P. (1989), “The Case for LBOs: The Safeway Experience”, *California Management Review*, 32 (1), pp. 9-19
- Marais, L, Schipper, K., Smith, A., (1989), "Wealth Effects of Going Private or Senior Securities", *Journal of Financial Economics*, pp. 151-191
- Megginson, W. L., Weiss, K. A. (1991), “Venture capitalist certification in initial public offerings”, *The Journal of Finance*, 46, 879–903.
- Meles, A. (2011), “Do private equity investors create value for Italian initial public offerings?”, *International Review of Finance*, 11, 391–416.
- Meuleman, M., Amess, K. Wright, M., Scholes, L. (2009), Agency, Strategic Entrepreneurship, and the Performance of Private Equity-Backed Buyouts, “*Entrepreneurship Theory and Practice*”, 2009, 33(1), pp.213-239
- Michael R. Braun Scott F. Latham, (2009), "Rethinking value creation in leveraged buyouts", *Management Decision*, 47 (5), pp. 702 – 729.
- Morris, P. (2010), Private equity, public loss? Working Paper No. 96, Centre for the Study of Financial Innovation, London.
- Muscarella, C. and Vetsuypens, M. (1990), “Efficiency and Organizational Structure: A Study of Reverse LBOs”, *The Journal of Finance* 45(5), 1389–1413.
- Opler, T. C. (1992), “Operating performance in leveraged buyouts: evidence from 1985–1989”. *Financial Management*, 27–34.

Palepu, Krishna G. 1990. Consequences of Leverage Buyouts. *Journal of Financial Economics*, 27 (1) (September), pp. 247-262

Scellato, G. and Ughetto, E. (2013), "Real effects of private equity investments: Evidence from European buyouts", *Journal of Business Research*, 66(12), pp.2642-2649.

Seth, A. and Easterwood, J. (1993), "Strategic Redirection in Large Management Buyouts: The Evidence from Post-Buyout Restructuring Activity", *Strategic Management Journal*, 14(4), pp. 251-273.

Shleifer, A. and Summers, L. (1988), "Breach of Trust in Hostile Takeovers", in Auerbach, A. (red.), *Corporate Takeovers: Causes and Consequences*. Chicago: University of Chicago Press.

Singh, H. (1990), "Management Buyouts: Distinguishing Characteristics and Operating Changes Prior to Public Offering", *Strategic Management Journal*, 11 (4), pp. 111-129.

Singh, H. (1993), "Challenges in Researching Corporate Restructuring", *Journal of Management Studies*, 30 (1), pp. 147-172

Smith, A. (1990), "The effects of Leveraged Buyouts", *Business Economics*, 25(2), pp. 19-25.

Tian, X. (2012). The role of venture capital syndication in value creation for entrepreneurial firms, *Review of Finance*, 16, 245–83.

Thompson, S., Wright, M. and Robbie, K. (1992), "Buy-Outs, Divestment, and Leverage: Restructuring Transactions and Corporate Governance", *Oxford Review of Economic Policy*, 8(3), pp. 58-69.

Tykvová, T., Borell, M. (2012), "Do private equity owners increase risk of financial distress and bankruptcy?", *Journal of Corporate Finance*, 18, 138–50

Vinten, F. (2007), "The performance of private equity buyout fund owned firms", Working paper, Copenhagen Business School.

Wang, C. K., Wang, K. and Lu, Q. (2003) Effects of venture capitalists' participation in listed companies, *Journal of Banking & Finance*, 27, 2015–34

Warga, A., Welch, I. (1991), "Bondholder losses in leveraged buyouts", *Review of Financial Studies*, 959-982.

Weir, C., Laing, D. (1998), "Management buy-outs: the impact of ownership changes on performance", *Journal of Small Business and Enterprise Development*, 5 (3), pp. 261 – 269.

- Weir, C., Jones, P. and Wright, M. (2008), "Public to private transactions, private equity and performance in the UK: An empirical analysis of the impact of going private", Working paper, Robert Gordon University and Nottingham University Business School.
- Wiersema, M. and Liebeskind, J. (1995), "The Effect of Leveraged Buyouts on Corporate Growth and Diversification in Large Firms", *Strategic Management Journal* 16(6), 447-460.
- Wright, M., Thompson, S., Robbie, K. (1992), "Venture capital and management-led leveraged buyouts: European evidence", *Journal of Business Venturing*, 7 (1), pp. 47–71.
- Wright, M., Wilson, N., Robbie, K., Ennew, C. (1994), "Restructuring and Failure in Buy-outs and Buy-ins", *Business Strategy Review*, 5 (2), pp. 21-40
- Wright, M., Wilson, N., Robbie, K. (1997), "The longer term performance of management buy-outs", *Frontiers of Entrepreneurship Research*, pp. 555–569.
- Wright, M., Hoskisson, R. and Busenitz, L. (2001), "Firm Rebirth: Buyouts as Facilitators of Strategic Growth and Entrepreneurship", *Academy of Management Executive* 15(1), 111-125.
- Wright, M., Gilligan, J. and Amess, K. (2009), "The economic impact of private equity: what we know and what we would like to know", *Venture Capital: An International Journal of Entrepreneurial Finance*, 11, pp. 1–21.
- Wilson, N., Wright, M., Siegel, D. S., Scholes, L. (2012), "Private equity portfolio company performance during the global recession", *Journal of Corporate Finance*, 18, pp. 193–205.
- Zahra, S. (1995), "Corporate Entrepreneurship and Financial Performance: The case of Management Leveraged Buyouts", *Journal of Business Venturing*, 10, pp. 225-247